Mission-Driven Funding

Infrastructure IPT

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Executive Summary

The Department of Defense recognizes standardization as an acquisition and sustainment tool. The Defense Standardization Program was established to provide a formal infrastructure to institutionalize the implementation of standardization policy and public law that has existed for decades. Yet today acquisition policy and practices do little to promote and ensure implementation of standardization initiatives as an acquisition tool. There is little accountability and advocacy at the Service, Agency, and DoD level to assure consistent, deliberate efforts to implement standardization as an acquisition and cost-cutting tool.

Today, the DoD strives to make best use of commercial technology and industry practices. To that end, the DoD no longer mandates use of military specifications and standards for new designs. Still, the government must continue to assess and manage technical solutions and complex, advanced state-of-the-art weapon system programs. It is imperative that the government be a smart buyer, understanding both technology and contractor processes. The government must continue to ensure application of sound engineering, manufacturing, and test practices. The engineering workforce must continue to ensure implementation of effective technical processes on DoD programs. Performance-based contracting and contractor-owned processes provide opportunities for innovation, but also result in proliferation of numerous different technical practices, challenging the DoD acquisition and sustainment community. Today the DoD operates in part from its standardization-engineering knowledge legacy—a legacy that is rapidly disappearing. Standardization is a tool to facilitate achievement of reliability, performance, and cost objectives that are required to field weapon systems.

The Department of Defense has chartered the Defense Standardization Program (DSP) to develop a strategy to reengineer its infrastructure to more effectively implement standardization policy and objectives and support the Departments interoperability and logistics readiness goals. To accomplish the goal, DSP must provide effective engineering and standardization solutions that satisfy customer requirements. Key to this effort is ensuring that DSP activities are adequately funded and suitably staffed to execute its missions as required by DoD 4120.24-M.

A fundamental concept for future resource management is that the source of funding must be linked to specific customer mission requirements. For example, while some DSP work is consistent with the mission of a participating field organization, other important DSP-driven duties do not mesh with that mission. To ensure future effective DSP execution, it will be necessary to invoke a structured process that identifies work to be accomplished against the intended mission, and pursue resources through appropriate avenues, including through DSP channels.

The recommendations in this document propose a strategy to identify, justify and advocate those critical resources (funding, manpower, skills) necessary to effectively implement standardization as an acquisition and sustainment tool in support of DoD weapon systems procurement. Following are the recommendations:

- *Recommendation #1*: Establish a standardization resource requirements planning process (DSP, Service and Agency, Center and Command, and local).

- *Recommendation #2*: Establish a process for securing and allocating funds and manpower (levels and skills) to effectively, execute the standardization program.

- *Recommendation #3*: Establish a process for developing and maintaining an effective standardization advocates network.

- *Recommendation #4*: Establish a process for assuring accountability within the standardization program.

Introduction

The DSP is reengineering its infrastructure to better apply standardization principles to more effectively support the Department's interoperability, logistics readiness, and cost containment goals by providing effective engineering and standardization solutions that satisfy customer requirements. In recent years, the DSP has been inadequately funded and understaffed to execute its missions as required by its customers and DoD 4120.24M.

The recommendations in this document describe a strategy that correlates mission requirements, standardization initiatives to support mission needs, mission schedules, and resource requirements (funding, manpower, and skills) to more effectively justify and secure those resources needed to do the job. The recommendations include approaches for aligning the DSP infrastructure and resource requirements with clearly defined mission needs. The strategy proposes development of effective advocacy and accountability tools to help justify, defend, and execute the DSP mission and funding.

TASKING

The tasks addressed in this document, V.A.1 and V.A.2, are part of the infrastructure improvements assigned to the Infrastructure IPT.

The infrastructure goal is a comprehensive, integrated DSP infrastructure that is sufficiently funded and staffed and integrates the DoD acquisition, operational, sustainment, information technology, and related military and civil communities.

Objective V.A Funding and staffing requirements are defined, justified, prioritized, and filled		
Action V.A.1 Develop and implement an adequate funding strategy	**Key Steps** 1. Collect funding profiles from the military services and agencies 2. Develop a funding strategy 3. Fund the program	**Lead** Air Force
Action V.A.2 Develop and implement an adequate staffing strategy	**Key Steps** 1. Collect manpower requirements 2. Analyze and select alternative staffing strategies 3. Determine priorities from manpower information to meet the goal	**Lead** Air Force

OVERVIEW—MISSION-DRIVEN FUNDING

The strategy, called "Mission-Driven Funding," recognizes that standardization tasks must compete with many other programmatic requirements for funding. The requirements that will compete successfully for scarce funding and resources will be those that best demonstrate their importance and contribution to achieving essential missions. A few key principles underpin this strategy:

- Standardization initiatives are inherently intended to be applied across multiple programs and applications that produce a multitude of benefits.
- Work performed by a System Program Office (SPO) must directly support that particular SPO's mission; the SPO does not generally assess the bigger picture.
- Product acquisition and logistic sustainment Centers often are organized to support a specific domain, (e.g., space, aeronautical, armament, missile).
- Standardization opportunities exist within the domain and across domains.
- Every organization exists to perform one or more missions.
- Standardization work supports the missions of one or more organizations.
- Performing standardization work consumes resources and takes funding.
- The organizations (Centers) that require standardization work should fund the work.
- Work can be linked to missions and organizations with budgets.
- Standardization work is planned, budgeted, and competes for funds.
- Work that is not funded will not be performed.
- Not performing standardization work has consequences.
- Programs will suffer the consequences of standardization work that is not performed.
- Decisions to perform or not perform standardization work must be made with full understanding of the consequences.
- Standardization is an acquisition and sustainment tool; management visibility in the form of metrics and accountability is necessary to measure appropriate use of the tool.

- Management visibility in the form of metrics and accountability is necessary at all levels within the DoD—USD (AT&L), Service and Agency, Major Command, Center.

Mission-driven funding will require a systematic approach to conducting standardization business. An annual planning process will be required to identify the expected workload, determine the resource requirements, identify the consequences of not performing the work, and submit the requirements into the annual budgeting process. This document provides a strategy to identify and secure adequate resources to effectively implement the Defense Standardization Program. The success of the strategy depends on clearly demonstrating contributions of standardization to achieving DoD mission objectives.

In summary, performing standardization work contributes to many objectives:

- improving operational readiness;
- conserving money, manpower, time, facilities, and natural resources;
- improving quality, reliability, maintainability, and safety of systems and items of supply;
- enhancing interchangeability and interoperability;
- planning and accelerating insertion of new technology;
- sustaining and improving the industrial and technology base; and
- promoting competition and improving communication between customers and suppliers.

Appendix A contains a detailed discussion of standardization as a basis for funding.

CURRENT ENVIRONMENT

The DoD is striving to put into use commercial technology and industry practices, even as government and industry technical processes and supporting documentation continue to change. For acquisitions outside of reprocurement, with few exceptions, the DoD no longer mandates military specifications and standards in requests for proposals (RFPs) or contracts.

In a performance-based business environment, a contractor is free to offer any solution that satisfies the performance requirements. The burden of proof is on the government to assess the offers and determine their adequacy using a common set of evaluation criteria. To achieve this objective, it is imperative that the government be a smart buyer, which requires understanding both technology and con-

tractor processes. Eliminating restrictive government specifications and standards from DoD RFPs and contracts increases opportunities for industry to apply innovative design solutions, emerging technologies, and industry best practices. However, the government must be able to differentiate a good proposal from a mediocre or inferior proposal. Awarding contracts based only on price increases risk, fails to obtain best value, and potentially does a disservice to contractors who submit technically sound proposals at a fair price and only encourages contractors to cut corners in future bids to improve their opportunity to win the contract.

The government must continue to assure application of sound engineering, manufacturing and test practices. The engineering-standardization workforce still must ensure implementation of effective technical processes on DoD programs. The Performance Based Contracting and Contractor Owned Processes provision has resulted in proliferation of numerous, different contractor practices. Contractors often base their technical standards, detailed processes, and practices on military and non-government (industry) standards. The proliferation increased variability in the stability, effectiveness, and validation of the reengineered, streamlined technical practices. While some contractors may standardize from a company perspective, there is little industry-wide standardization.

The Defense Standardization Program serves as a mechanism to institutionalize the implementation of standardization policy. For years, public law has provided legal stature and responsibility to standardize. Still, acquisition policy and practices today do little to promote and ensure implementation of standardization initiatives as an acquisition tool. For the most part, aside from the obvious parts standardization practices that were institutionalized through the Qualified Products Lists (QPL) and Qualified Manufacturers Lists (QML) programs, there is minimal accountability and advocacy at the Service, Agency and DoD level to assure consistent, deliberate efforts to implement standardization as an acquisition and cost-cutting tool. The DSP Award Program attempts to provide visibility; unfortunately it falls short of its intended objectives. The recently revised 5000.2 says little about standardization as a tool of the trade. Joint Technical Architecture (JTA) and interoperability are touted as the cornerstone of future military systems and the foundation of technical solutions are embedded in industry standards applied on DoD systems. In addition, Single Acquisition Management Plans, Acquisition Strategy Panels, Systems Engineering Management Plans and others do not specifically address standardization, common system requirements, common system solutions, common technical practices, nor are they required to.

Engineering assessment to look for standardization opportunities is almost nonexistent. Programs operate in a vertical chain and do not have the resources or charter to assess the bigger picture. In the DSP environment, this is a function of the Lead Standardization Activity (LSA) for each domain or major functional area, or the proposed Standardization Area Support Teams (SAST) function.

SUMMARY OF KEY ISSUES

- Resources to effectively implement standardization initiatives are inadequate.
- Engineering resources and travel funds are especially scarce.
- There are few standardization-related metrics, and little measurement.
- Accountability is non-existent.
- Acquisition planning practices such as Acquisition Strategy Panels do not address standardization even when it is essential for interoperability.
- There is little awareness of the Defense Standardization Program, even though mandated by law, or of its implementing policies.
- There is a widespread perception that military specifications and standards are no longer relevant.

Recommendations

This document contains four recommendations that identify four key processes as the foundation pillars for building the mission-driven funding strategy. These four processes—planning, execution, advocacy, and accountability—are essential to the overall success of the strategy.

RECOMMENDATION #1

Establish a standardization resource requirements planning process. (DSP, Service/Agency, Center/Command, and local).

Define an annual DSP planning process to identify the expected workload, determine the resource requirements, identify the consequences of not performing the work, document the resource requirements, and submit the requirements into the annual budgeting process.

- Identify and document all resource requirements based on workload, mission, and related initiatives, including those for interoperability and logistics readiness (e.g., future logistics environment).
- Ensure that each process is linked to and aligned with the overall DoD funding processes.
- Ensure that each process includes all DSP players (e.g. DSC, DSPO, DepSOs, LSAs (SASTs), SMAs, participating engineers) and provides for proper coordination with all stakeholders.
- Ensure that each process is aligned to the DSP structure, including concrete ties to the Joint Materiel Performance Standard Roadmap and domain or major functional customers.
- Encompass all types of resource requirements, including DSP and standardization support tools.
- Provide a consistent mechanism for top-down guidance with bottom-up execution.

RECOMMENDATION #2

Establish a process for securing and allocating funds and executing the standardization program.

Implement the means for obtaining all resources needed to support defense standardization. Allocate those funds to the appropriate activities. Ensure timely, effective execution of tasks and activities associated with those resources.

- Establish and ensure repetitive use of specific fund citations for standardization by each Service and Agency.
- Accommodate various funding mechanisms or approaches to satisfy organizational needs (e.g., POM allocation vs. “tax”).
- Ensure that budgetary duties are incorporated into DSP roles and responsibilities.
- Provide for an effective prioritization process and a consistent reporting mechanism.
- Provide for a means to secure supplemental funding from OSD/Services without replacing local funding as a basis.

RECOMMENDATION #3

Establish a process for developing and maintaining an effective standardization advocates network. Institute the mechanism that identifies major stakeholders for the DSP and ensures their involvement in advocating the needs for resources to support customer requirements.

- Guide the Office of the Secretary of Defense (OSD) to take a proactive role to ensure that standardization is recognized and promoted as a key acquisition tool within the DoD.
- Guide Standardization Management Executives and Service/Agency standardization executives to take a proactive role to ensure that standardization is applied as a key acquisition tool within Center and Agency programs and contracts.
- Establish a process to identify all advocates for the program, including DSC, the Service Standardization Executives, Standardization Management Executives, and industry.
- Develop various means of communication (e.g., SD documents, sites in the IES portal, exhibits) to help customers identify and contact applicable DSP advocates.
- Ensure that each domain or major functional area is involved in the DSP advocacy process through the SASTs and applicable industry groups.

- Promote DSP advocacy that is consistent with the National Standards Strategy.

RECOMMENDATION #4

Establish DoD and Service- and Agency-level accountability to measure application of standardization as an acquisition and sustainment tool. Establish and implement accountability processes and practices that provide a measure of standardization and its application on DoD programs.

- Establish a routine, periodic feedback and reporting process throughout DoD.

- Ensure annual integrated planning through visibility into Center and domain standardization programs.

- Ensure visibility into the execution of Center and domain standardization programs, including successes, failures, challenges, and issues (e.g., funding, resource shortfalls).

- Require metrics and feedback mechanisms to document standardization success stories to provide visibility to the Center and Command as a means to promote the benefits of standardization.

- Assess and address standardization opportunities in acquisition planning practices such as acquisition strategy panels.

- Implement a report process using the DSP domain and functional chain (i.e., SASTs) and Service channels (i.e., SMA to DepSO to DSC to USD [AT&L]) to report accountability for OSD standardization funds received.

- Implement internal Service and Agency reporting processes through Service channels to report accountability for Service and Agency standardization funds received.

Current Funding Process

The primary execution chain for standardization is through the DoD Services and Agencies. The Defense Standardization Program Office, located at Ft. Belvoir, Virginia, includes a small staff to provide policy direction, some engineering support to industry associations, and limited engineering assessment and guidance to the field. In addition, some subscriptions providing DoD access to non-government standard documents and a minimum amount of engineering project funds sometimes are offered for specifically selected and targeted short-term projects. Most of the engineering work that is accomplished is done throughout the acquisition and sustainment Centers and agencies in direct support of their particular missions.

When examining various Service and Agency product and logistic Centers, it is obvious that the engineering effort that supports implementation of the DoD standardization objectives comes from program execution and not from separate funds under the DSP program. Centers have techniques for establishing organizations and resources to work their infrastructure for standardization. After assessing the current funding process, it was apparent that numerous techniques are used to provide resources and funds to operate the infrastructure. Some resources are a result of manpower and budgeting requirements captured in the MAJCOM operating POMs; others are taxes on the Center programs with their own program elements; others charge the user an appropriate cost and fee for services and products rendered (e.g., Defense Working Capital Funds [DWCF]). DWCF is especially prevalent within the logistic and supply Centers where products such electronic parts are offered to all DoD Services and Agencies. Other special interest or special purpose funds have their own Program Element (PE). Project proposals or other techniques also may provide funds that support implementation of the DoD standardization policy or Center-wide technical practices.

Significant engineering resources are required to support the DoD technical infrastructure for each domain. Before acquisition reform, this effort was funded at a level that at least developed and maintained the high priority technical documents required to execute missions. Former Secretary of Defense William Perry's June 1994 directive forced funds into the infrastructure to achieve the one-time overhaul of the military specifications and standards. In the longer term, the short period of funding availability had detrimental effects on the infrastructure. Centers relied on this external source of funding to substitute for internal resources (people and engineering, travel dollars). When the external funding sources went away, the internal funds were not there to cover the void. Today many efforts are not worked on and the DoD operates from its legacy. In many cases, technical practices knowledge is not shared. The DoD has seen evidence of ineffectiveness in technical practices, which is a short-term effect. Not yet apparent is DoD's

ability to achieve reliability, performance, and mission life expected in fielded systems. Many systems are yet to be fielded.

This model has several critical weaknesses. No longer recognized and appreciated are the importance and criticality of the infrastructure to achieving the technical part of the mission and the resource savings and efficiency realized from the inherent benefits of standardization. The cycle is a “chicken and egg” situation: Minimal resources are available to accomplish the bigger picture engineering assessment to identify inadequacies in technical practices and solutions. Likewise, funding is unavailable to identify alternative technical solutions common to multiple systems, which then provide the ammunition to justify Center resources to fund these efforts.

The technically complex systems DoD develops, acquires, and maintains require a substantial, highly skilled engineering technical workforce representing a wide variety of engineering skills. A number of organizational and manpower models are employed to meet these complex demands. Many of the individuals, in support of accomplishing their specific mission objectives, also provide technical support to technical practices, specifications, standards, products, industry supply base necessary to repeatedly and reliably develop and deploy DoD weapon systems, which are the foundation of the infrastructure.

A critical DSP function not being accomplished is the engineering assessment element of the lead standardization activity (LSA). Standardization Program Plans, which are driven by the LSA, also are not accomplished. The Standardization Program Plans represent the standardization assessment and planning function across the DoD. A global engineering perspective for every domain or enterprise is essential to recognize standardization opportunities. Engineering assessment is necessary to recognize standardization opportunities including common requirements and common solutions.

Engineering assessment is the first step before developing and implementing a common solution that will have application across multiple systems within a domain or major functional area or across multiple domains and areas. It includes assessing system needs and current solutions and identifying common requirements and solutions to accomplish the technical mission. It includes using an integrated set of technical requirements and an affordable, reliable common solution acceptable to many users. Preliminary engineering work needs to expose opportunities and construct an acceptable technical solution or concept to present and defend to the targeted community.

Future Funding Process—Mission-Driven Funding

Funding requirements must come from sound planning. Obtaining funds requires advocacy, accountability, and a clear return on investment. The standardization community must return to basic sound resource planning, budgeting, and program execution. The Standardization community must develop an effective network of strong advocates and ensure visibility and accountability for results. The community must increase management awareness of the benefits of properly applied standardization.

The resources required to execute the standardization program cross many government and industry organizations.[1] The benefits of standardization also accrue to many organizations.

FUNDING REQUIREMENTS PLANNING

Workload planning and documenting resources requirements should result from a bottom up planning and budgeting process. Organizations engaged in standardization activities annually must plan up front to identify workload and develop a technical plan of action including defining technical objectives, program mission areas supported, resource requirements, and projected schedules. The Lead Organization for the SAST (i.e., the entity as proposed to subsume the role of the LSA in the recommendations on DSP Structure from the Infrastructure IPT) will be responsible for preparing an annual Integrated Standardization Requirements Plan (ISRP). The ISRP must include all of the organizations that have identified standardization needs for the area that potentially qualifies for Joint Service funding.

ANNUAL BUDGET PLAN PREPARATION

Each responsible organization should prepare a comprehensive customer-focused integrated standardization budget and plan that effectively ties resource needs and workload with mission needs. The plan should contain detailed task lists, schedules, manpower requirements, and funding requirements (including sources of funds). The plan should identify the specific projects, initiatives, and tasks that define a manageable, reasonable, and realistic task load. Appendix B provides an

[1] There are numerous techniques for funding and operating the standardization infrastructure. Some resources flow from manpower and budgeting requirements captured in the MAJCOM POMs. Other funds come from taxes on services or Centers with their own program elements. Some funds flow from charging users appropriate costs or fee for services (DBOF). Some special purpose funds that have their own program element and are used to support or implement standardization policy or Center-wide technical practices. For example, the Air Force Industrial Preparedness Program helps fund industrial base assessments.

illustrative plan outline based on a Space and Missile Command model. Planned work should be based on analysis and understanding of program mission needs. Planned effort will include maintaining legacy products and initiation of new projects. Conducting big picture assessments within domains and major functions is essential.

FUNDING STANDARDIZATION

Discovering and documenting the standardization opportunities that benefit an entire enterprise, domain, and major functional area requires a global engineering perspective. Only by lifting engineering vision above a single program or mission can the big picture emerge. Each domain or major function needs individuals who can look across the entire area and see the opportunities and problems with a trained eye. The DSP provided that capability through its LSA function. The re-engineered DSP will re-institute that function in its SAST and in the long term, through Common Enterprise Forums. (See the recommendation at Tab C3 of the Infrastructure IPT). These entities will form the heart and soul of the domain or major functional area and define the technical practices that characterize the domain or functional area as an enterprise center of excellence.

Implementing domain or functionally-based standardization initiatives will require funding for general administrative and technical support that cuts across program, domain, function, DoD, and even international boundaries. This funding will be difficult to obtain from the narrowly focused program or Center funding channels that provide meager standardization funding today. High-level standardization requires new funding mechanisms and advocacy.

Engineering assessment and technical program planning are necessary to identify common requirements and technical needs. Domain or functionally focused teams will help develop and implement a common solution with an application across multiple systems within a domain or functional area or across multiple domains and functional areas.

One key premise of the mission-driven funding strategy holds that organizations with missions that require or benefit from standardization work should pay for that work. Some standardization work benefits a wide community such as an enterprise or domain. Funding for such domain-focused standardization must come from multiple sources requiring new mechanisms to provide domain-based funding. Mission-driven funding mechanisms must identify the missions that benefit from the work and the sources of resources to effectively implement the work.

OSD/Joint Service Funding

Work mandated by law, directed by DoD standardization policy, or that has DoD-wide impact beyond the Center or organizational mission should be funded at the OSD level. The funds might come from the DSP budget program element or from

a form of taxation across the Services and Agencies. Following is a list of some items that might be funded at the OSD level:

- DSP policy development and management
- DSP management infrastructure
  - Defense Standardization Council
  - Defense Standardization Program Office
  - Departmental Standardization Offices
- DSP administrative and implementation infrastructure
  - Selected Lead Standardization Activities and SASTs activities (including Program Administration duties)
  - Selected document management activities
- Travel that supports DoD-wide missions
  - NGSB support
  - Technical interchange meeting participation
- Standardization project assessment with DoD-wide impact (seed funds for special engineering studies)
- DoD-wide subscription services
- DSP knowledge management resource administration
  - DSP portal
  - ASSIST enhancements
- International Standardization Agreement administration.

Domain and Functional Area Funding

Funding for work that is identified at the domain-level may come from the domain or major functional area. The domain or functional area may have its own budget program element or use a weighted cost-sharing scheme based on the area participants and their proportional share of the enterprise. Following is a list of items that might be funded at that level:

- Identifying domain or function-wide standardization opportunities

- Addressing domain or function-wide standardization issues
- Domain or function strategic standardization planning
- Developing domain or function-specific documents
- Maintaining domain or function-specific documents
- Defining domain or functional standardization requirements
- Defining domain or functional standardization architecture

Center Funding

Funding for work that is related directly to a Center's mission (e.g., Navy System's Engineering Organizations; DLA Supply Centers, Product and Air Logistics Centers; and Army Major Subordinate Commands) should come from that Center's budget. Centers might use similar mechanisms to those already mentioned for obtaining funds or use other approaches. Centers with sustainment missions such as DLA might use industrial funding to support standardization work. Following is a list of items that might be funded at the Center level:

- SMA activities directly related to the Center's mission
- Identifying Center standardization opportunities
- Addressing Center standardization issues
- Center strategic standardization planning
- Developing Center documents
- Maintaining Center documents
- Defining Center requirements
- Defining Center architecture
- Center manpower planning
- Project technical/engineering resources
- Standardization projects/initiatives relevant to Center mission
- Project technical/engineering resources
- Specifications and standards technical support
- Center support for its QPL/QML programs

Appendix C provides two examples of funding justifications.

Program Funding

Funding for work that is unique to a single program should come from the program's budget. Following is a list of items that might be funded at the program level:

- Identifying program standardization opportunities
- Addressing program standardization issues
- Program planning
- Developing documenting program-specific solutions
- Maintaining program-specific documents
- Defining program-specific requirements
- Defining program engineering architecture

FUNDING NGSB SUPPORT AND PARTICIPATION

DoD, Services, Centers, programs, defense contractors increasingly use non-government standards. The organizations that use NGSB documents to support their missions must support and participate in NGSB activities that involve the documents with important mission implications.

DoD needs some high-level NGSB support and participation to maintain its cognizance of evolving technology and standards. These activities might not have immediate program or mission impact but be critical to potential future requirements. Supporting such general forums is difficult to justify at the Centers and programs, yet the DoD needs to be involved, and OSD funding may be required to support such participation. Executing Centers can provide support commensurate with their mission needs and the number of technical representatives they wish to send.

An appropriate cost sharing strategy should be implemented to support NGSB participation by DoD employees. For example, one strategy would permit OSD/Joint Service funding of TDY expenses and NGSB membership fees to enable DoD personnel to participate on NGSB committees, subcommittees and groups. In exchange, the applicable Standardization Management Executive would commit to ensuring that such personnel dedicate their time between meetings in support of handling action items assigned to them out of such meetings.

Within the DoD, a process is needed for cross feeding information and identifying technical issues and concerns. An effective information sharing process could minimize the DoD representation required at these forums. OSD should fund developing the infrastructure needed to support and manage this process.

Securing and Maintaining Advocacy

There is minimal advocacy for standardization at the Service, Agency and DoD levels. For the most part individuals in the field with standardization responsibilities are on their own to justify and secure funding to execute the program. The DSP Award Program attempts to provide visibility but is insufficient by itself to effect funding. The recently revised 5000.2, while it mentions standardization, will do little to make additional standardization funding available. The program and the people in the field need more effective advocacy. Advocacy at higher headquarters can play a significant role.

DEVELOP A DSP ADVOCACY NETWORK

First and foremost, Standardization needs an OSD-level advocate. The current chair of the Defense Standardization Council, ADUSD for Logistics Plans and Programs would be a logical position for this advocacy. In addition, the individual Service members of the DSC could serve as the Service Standardization Advocates. As such, the DSC would act as a Joint Service Standardization Advocacy Panel working to coordinate Joint Service Standardization resource requirements for presentation to the applicable OSD organizations.

At the field level, there is a need for a high-level advocate to pursue Standardization needs through the local Center or organization. This is one of the roles envisioned for the Standardization Management Executive (SME), who works with the DSP Program Administration and local technical functions at their Center or organization to support the needs for standardization action.

For domains and Standardization Area requirements, the applicable SAST will be responsible for providing advocacy to the DSC for DSP Standardization Area funding requirements. As part of the SAST, the Area Standardization Executives serve as the actual advocates individually within their Service and corporately through the DSP channels to the DSC. A further description of the SAST is provided in the recommendation on DSP Structure in the Infrastructure IPT report.

EMPLOY THE ADVOCATES NETWORK TO OBTAIN AND PROTECT FUNDS

The SMA associated with a specific funds requirement or issue can engage the advocacy network in at least two ways. The SMA may obtain local funding by either working with the local staff associated with obtaining funds in general or engaging higher-level local funding advocates through the local SME. Likewise, for DSP-driven or domain or area-wide issues, the SMA can engage the SAST at

large, either through the Lead Organization or through the SAST Area Standardization Executives through their local SME.

For DSP-specific funding, the SAST in turn can work through the DepSOs or, depending on the urgency of the matter, through their Area Standardization Executives to the DSC. In each case, when acting on behalf of the entire Team, the SAST Lead Organization or Lead Executive will engage the DSPO or DSC Chair, to enlist initial support.

USD (AT&L) SHOULD EMPHASIZE STANDARDIZATION

The Undersecretary of Defense for Acquisition, Technology, and Logistics requires the DSC Chair to champion the development of a Joint Materiel Performance Standards Roadmap (JMPSR), which is to be used to identify standardization requirements critical to ensuring system interoperability and materiel logistics readiness. The DSC Chair is to brief USD(AT&L) on the progress on development and evolution. For the purposes of DSP advocacy, the IPT recommends that the DSC Chair propose a letter to be issued under USD(AT&L) signature highlighting each version of the JMPSR. The letter should stress that resource priorities should be given to those actions required to implement those standardization requirements identified in the JMPSR, as well as those required to keep the controlling documentation cited current and accurate.

Establishing and Enforcing Accountability

Standardization is one of many tools that can be applied to better achieve DoD weapons system acquisition and sustainment objectives. With minimal accountability and advocacy at the Service, Agency, and DoD level, there is a need for metrics to be applied to determine if standardization is being used appropriately to yield consistent, deliberate efforts to implement standardization as an acquisition and cost cutting tool.

Accountability is essential at several different levels. Single Acquisition Management Plans, Acquisition Strategy Panels, and Systems Engineering Management Plans do not specifically address standardization, nor are they required to. For example, such plans could address interoperability, common system requirements, common system solutions, or common technical practices in acquisition and sustainment of weapon systems.

There appears to be an underlying belief that acquisition reform and best commercial practices inherently will provide optimum outcomes including interoperability and standardization where it is in the government's best interest. However, programs appear more vertically aligned today than ever before, and contractors are resource limited. For example, interoperability uses many government and industry standards as the foundation to achieve system-level interoperability. Visibility throughout DoD is critical to ensure that the infrastructure exists to provide the necessary tools for individual programs to define and implement interoperability requirements.

Annual ISRPs should define the composite standardization activities required by each domain area. This plan includes necessary initiatives and requirements to implement a program standardization initiative or across multiple programs.

To use standardization as an effective acquisition and sustainment tool, there must be visibility and accountability at all levels of organizational structure from the USD(AT&L) to the implementing organizations within the acquisition and sustainment Centers. USD(AT&L) must advocate and promote standardization, then follow with routine periodic feedback and reporting that provides visibility throughout DoD. All Service and Agency higher headquarter organizations should require visibility into Center and domain standardization programs and ensure annual integrated planning. Higher headquarter organizations should require visibility into the execution of Center and domain standardization programs, including successes, failures, challenges and issues that are impeding or have prevented the implementation of standardization initiatives (e.g., funding and resource shortfalls). Each Service and Agency higher headquarters and Center executive organizations should require metrics and feedback mechanisms to document standardization success stories to provide visibility to the Center and command as

a means to promote the benefits of standardization. Acquisition planning practices such as Acquisition Strategy Panels should assess and address standardization opportunities.

Next Steps

APPROACH

While these recommendations are related to establishing a new DSP structure described in detail in a recommendation in the Infrastructure IPT report, nothing in the current DSP structure prevents moving forward with implementation. This set of recommendations advocates establishing additional comprehensive planning and funding processes to work in conjunction with existing processes used by the Military Services and Defense Agencies. It proposes an OSD source of funds for specific standardization-related activities to supplement Center and Agency funding. The most critical activity likely to be unfunded is the LSA engineering assessment element so crucial to success. Because of the complexities of implementing a new program structure and instituting a formal planning and funding process for the first time under the DSP, the IPT recommends a multi-phased approach toward implementation.

Following is a list of recommended steps for DSPO to take for earliest implementation:

- Prepare a letter for USD(AT&L) signature to the Services and Agencies emphasizing standardization as an acquisition and sustainment tool and the benefits it can achieve. The letter should include documentation of ongoing standardization initiatives, including realized and expected benefits. The letter should stress the need to develop detailed standardization plans to define resource requirements and refer to a planned DSPO pilot project to institute such a process applicable to standardization activities.

- Review current Defense Standardization Council activities against the existing DoD 4120.24-M DSC charter and consistency with current duties. Establish an action plan of initiatives based on the existing charter to support the recommendations proposed in this document.

- Initiate a tiger team to assess current acquisition and sustainment planning policy, processes, and documentation requirements to identify critical planning points, milestone review points, and documentation points where standardization strategies could be addressed. Then update policy and instructions, and develop new Standardization Policy documentation.

After the SASTs are established, the Defense Standardization Executive should request each Service Standardization Executive to designate at least one Standardization Management Activity acting as Team Lead for an SAST to participate in a pilot program implementing the mission-driven funding proposal. Following is a list of required actions:

- Direct SASTs, including the associated Area Standardization Executives, to review shared standardization funding requirements for their designated Standardization Area and advocate those requirements through the appropriate Service and Agency channels. (This is an action for the DSC through the Council Chair.)

- Advocate DSP-mandated requirements through the DSC, which in turn will advocate those needs at the OSD and Service Headquarters level. (This is an action for the SAST.)

- Develop and demonstrate use of an associated ISRP to identify funding requirements in implementing standardization for that domain or Standardization Area.

- Outline procedures for submission of shared-funding requirements by the associated SMAs to the SAST activities responsible for ASMP development.

- Provide guidelines for the development of the ISRP.

- Implement and use the already established Service and Agency Standardization fund cites as the mechanisms for providing shared-funding for standardization, and encourage their use internal to each Service or Agency.

- Establish and demonstrate the use of a Standardization Accomplishments reporting system to document and track standardization projects, benefits, successes.

- Provide guidelines for development of the Accomplishments report.

- After a period not to exceed one year, review the progress of the pilot program and recommend to the DSC appropriate follow-on action to include one or more of the following:

  - Full-up implementation of the pilot program across all Standardization Areas

  - Expansion of the pilot program short of full-up implementation

- ™ Extension of the existing pilot program for a specified additional time period
- ™ Modification of the pilot program to incorporate lessons learned from the results of the implementation to that date.

Appendix A
What is Standardization? Why Fund?

This section provides background on standardization as a function, with a particular emphasis on why it is done, who does it, why it is needed, and what the consequences for not doing it are.

ORIGIN OF THE DOD STANDARDIZATION FUNCTION

Public law establishes the requirement to standardize within the DoD. The Defense Standardization Program institutionalizes and implements the law through defense standardization policy. Standardization in its simplest form is reusing a product or process in more than one application or by more than one user. For example, the automobile industry uses certain piece-parts across multiple models of cars. Such standardization benefits the automobile industry by

- Eliminating the need to reengineer a new design
- Minimizing the number of different part types needed in stock
- Providing for increased usage quantities
- Facilitating reduced manufacturing costs
- Enabling more economical order quantities
- Incorporating lessons learned and enhancing reliability and producibility.

The same principles and benefits hold for the DoD even though the products involved are not necessarily parts. The DoD expends extensive resources developing, acquiring, and sustaining weapon systems, engineering product designs, and working with industry to assure the application of sound design, manufacturing and test practices. Like common parts, DoD and its contractors use such practices on many different systems.

BENEFITS OF STANDARDIZATION

Standardization reduces engineering expenditures for DoD and its contractors because engineering must be performed only once; the solution is reused many times. Additional savings accrue from

- Maintaining a single standard that is used across the defense industry
- Using shared resources through government and industry associations and technical forums
- Minimizing reinventing the wheel over and over again
- Avoiding the reinvention pitfalls and failures that go with doing something the first time
- Achieving higher quality technical practices and products (higher reliability) resulting from extensive use across the industry
- Repeating use and validation of practices and methodology and benefiting from the lessons learned
- Producing higher volumes of product flow, including standardized process flows
- Increasing process controls due to higher volumes
- Reducing inventory due to reduced part types
- Making economic order quantities due to increased part volumes (many users; same part/material type)
- Applying industry-accepted design and product standards to increase system level interoperability (Open Systems Architecture; JTA)

CONSEQUENCES

By not standardizing, the DoD not only loses the opportunity to realize the savings and benefits described above, it often pays larger penalties in performance and mission effectiveness (e.g., not using standards contributed to recent failures to achieve mission objectives). Such failures have prompted the Military Services and other government agencies to initiate corrective actions such as special reviews and new initiatives intended to re-institute proven management and engineering disciplines and standards.

Services are introducing new comprehensive technical practices deemed necessary to achieve mission success. For example the Air Force's Operational Safety, Suitability and Effectiveness (OSS&E), the Launch Broad Area Review (LBAR), and recent rethinking of NASA's Faster, Better, Cheaper initiative resulted from mission failures and loss of human life. Standardization will not fix all the problems that led to such initiatives; however, standardization is part of the solution. Standardization builds on successful processes and products, incorporates lessons

learned, and involves collaborating industry-wide to develop sound engineering solutions and practices.

OSS&E, an Air Force initiative, is designed put greater discipline back into acquisition and sustainment activities. System failures and loss of human life on several Air Force systems resulted from poor system engineering practices and inadequate technical practices. Many failure root causes were engineering related. The programs might have avoided the failures if the engineering processes had the discipline of standardization, qualification, or supplier certification as provided under the QPL or QML program.

The Aeronautical Systems Center (ASC) has developed and documented airworthiness certification criteria as the basis of its OSS&E flight worthiness certification. The Space and Missile System Center is developing its Space Flight Worthiness Certification Criteria as the basis for establishing space systems flight worthiness discipline. Managers must assess program technical practices/technical solutions and certify they have met the certification criteria. Product Center commanders and single program managers, who are responsible for determining and certifying flight and air worthiness, will find the task easier, and they will have greater confidence in technical assessments made using criteria based on accepted technical practices and standards.

ENGINEERING-STANDARDIZATION WORKFORCE AND WORKLOAD

Most of the resources employed to accomplish standardization initiatives are the same engineering workforce performing the acquisition and sustainment function within the DoD. This workforce must be knowledgeable and informed about the full range of technologies within their respective disciplines. This is especially true for dual-use technologies and the integration of commercial technologies (COTS) and technical practices and processes into defense programs. Active involvement in industry working groups, professional societies, and non-government standards bodies (NGSB's) is crucial to maintaining technical excellence. DoD engineers must maintain their ability to assess technical proposals to assure they will keep DoD weapon systems on the leading edge and provide for mission success.

Rapidly changing technology and changing industry engineering procedures and practices require investments in the DoD engineering workforce if it is to remain relevant. Rapid change in industry practices place demands on DoD technical resources to analyze and assess the new and modified practices and the specifications and the standards that support them.

The DoD must identify the products, specifications, and standards that industry uses in support of government acquisition and sustainment. It must assure that the products, specifications and standards will be adequately supported to meet cur-

rent and future requirements. The DoD standardization workforce performs this work in concert with other specifications and standards bodies (government and non-government) on behalf of the entire DoD. The DoD standardization workforce ensures coordination and information dissemination. Specifications and standards have evolved and become a primary toolset for documenting and capturing the technical requirements and practices used by both government and industry.

Standardization work involves the DoD engineering-standardization workforce and industry contractors to meet government needs. Standardization projects and initiatives involve a variety of requirements including:

- System level requirements
- Interoperability
- Open systems architecture
- Interface requirements
- Industrial practices
- Standards used in acquisition and operation of DoD systems
- Standardization for material and parts
- Standards for achieving enhanced reliability
- Logistics item reduction and control
- Engineering practices
- Technology standards applied in system development and deployment
- Industrial best practices
- Industry standards applied in system development and deployment
- Manufacturing process standards
- Test methods.

Hardware and software standardization are also critical elements of the standardization program. The QPL/QML military parts program assures qualified parts from certified suppliers providing a ready and reliable source of robust electronic and other parts for use in high dynamic, stressful military environments.

Supporting DoD's acquisition and sustainment missions requires an engineering-standardization workforce with a broad command of technical disciplines to support DoD requirements across diverse industries. Capabilities span a range from pure engineering to manufacturing and test methods. It includes understanding product specifications, technical performance parameters and attributes, qualification and supplier certification.

Appendix B
Example Outline of Space Standardization Plan

To provide a better sense of a plan and the level of detail, the following example provides a plan outline that reflects current technical efforts to support standardization.

Example Space Standardization Plan Outline

Indenture Level	Task Description	Comments	Resource	Total Project Funding
1.0	Engineering			
1.1	Space Systems Reliability Engr Methods			
	Reliability Predictions Methodology	PRISM assess & other tools	Aerospace SETA	.3MTS $20K
	Process Engineering Reliability FR	Practicality of parameter & utility	Aerospace SETA	.3MTS $20K
	Space Sys Reliability Program Control Program	Critical elements of effective reliability program	Aerospace SETA	.35MTS
	Mil-Hdbk 1543 -Space Sys Reliability	Industry dropped ball during acq reform - need engr tool	Aerospace SETA	.45MTS
1.2	Critical Process Assessment Tools			
	Systems Engr		SETA	$20K
	Risk Management		SETA	$20K
	PM&P		SETA	$20K
	Test		SETA	$20K
	Manufacturing		SMC	80 hrs
	Quality Assurance		SMC	80 hrs
	Reliability		SETA	$20K
	Maintainability		SETA	$20K
	Human Factors Engineering		SETA	$20K
	Survivability		SETA	$20K
	Program Management		SMC	80 hrs
	EMI/EMC		SETA	$20K
	Design Engineering		SETA	$20K
	Configuration Management		SMC	80 hrs
	Integrated Logistics Support		SETA	$20K

Indenture Level	Task Description	Comments	Resource	Total Project Funding
1.3	Space Qualified Parts			
1.3.1	*QPL/QML Technical Support*			
	QPL/QML Specification Activities	Mil-*-38535;38534;19500;883; 750;	Aerospace	1.2 MTS
	QPL/QML Audit/Certification Support		Aerospace	1.2 MTS
	QPL/QML Parts Engineering	e.g., TM- Metallization; hybrid elemental evaluation; residual gas analysis	Aerospace	1.2 MTS
	DoD Parts Mgmt RIT	OSD Support	Aerospace SETA	.1 MTS 160 hrs
1.3.2	*Radiation Hardened Electronics*			
	DoD Rad Hard Elec Strategic Roadmap			
	ELDRS Test Methods	Production test methodology to detect and screen for ELDRS	SMC Aerospace SETA	40 hrs .1MTS $20K
	817, System Development Radiation Hardness Assurance.		SMC Aerospace SETA	20 hrs .05 MTS $10K
	1019, Ionizing Radiation (Total Dose) Test Procedure		SMC Aerospace SETA	20hrs .05 MTS $10K
	5004, Screening Procedures	Test methods for screening product defects	SMC Aerospace SETA	40 hrs .1MTS $20K
	5005, Qualification and Quality Conformance Procedures		SMC Aerospace SETA	40 hrs .1 MTS $20K
1.3.3	*Parts Engineering*			
	EEE parts Uprating	Use of parts outside mfr's specified temp limits	Aerospace & NASA	.1 MTS *
	Plastic Encapsulated Microcircuits	Use of PEMs in space applications (reliability; part performance, radiation hardness)	Aerospace & NASA	.1 MTS *
	ELDRS engineering/physics assess	Engineering assessment of ELDRS engineering/physic issues		.1 MTS *
1.4	OSS&E			
	Space Flight Worthiness Criteria	Technical criteria to certify SMC systems under OSS&E	SMC SETA Aerospace	

Indenture Level	Task Description	Comments	Resource	Total Project Funding
	OSS&E Engineering Guide	Engineering guidance to implementation & application of SFWC		
1.5	Joint Technical Architecture/OSA			
	SMC engineering, policy & implementation guidance/support		SMC Aerospace SETA	400hrs 2MTS $160K
	Program implementation		SMC SPOs	
	Engineering analysis to ID standardization engineering solutions/ strategies		Aerospace SETA	
1.6	Satellite Imaging Standards & Protocols			
	Engineering analysis to ID standardization engineering solutions/strategies		Aerospace SETA	
1.7	Information Exchange & Communications			
	Engineering analysis to ID standardization engineering solutions/strategies		Aerospace SETA	
2.0	Boards and Working Groups (Mil & Ind)			
2.1	NGSB & Working Group Support			
2.1.1	*EEE Parts*			
	JEDEC/G12	Microelectronics, Semiconductors, & Hybrids	Aerospace	.36MTS
	SPWG/JEDEC 13.4	Radiation Hardened Electronics	SMC SETA	400hrs $20K
2.1.2	*Interoperability*			
	JTA Development Board		Aerospace SETA	
	Technical Architecture Steering Group		Aerospace SETA	
2.1.3	*Satellite Imaging Stds & Protocols*		Aerospace SETA	
	Commercial Communications Standards (COMM)		Aerospace SETA	
	DoD Data Administration (DATADMN)		Aerospace SETA	
	Electronic Commerce/Electronic Data Interchange (EC/EDI)		Aerospace SETA	
	Information Transfer Standards Management Panel (IXMP)		Aerospace SETA	
	SATCOM Interoperability & Standards Committee (SISC)		Aerospace SETA	

Indenture Level	Task Description	Comments	Resource	Total Project Funding
	Tactical Digital Information Link (TADIL)		Aerospace SETA	
2.2	Military Boards & Working Groups			
	DoD Microcircuit Planning Group			
	NASA Engineering Planning Group			
	Rad Hard Oversight Committee			
3.0	Space Specs & Standards			
3.1	Military Specs & Standards			
3.1.1	*SMC Specs/Standards*			
	Mil-Std 1580B (DPA)		SMC Aerospace NASA DSCC Industry	60 hrs .3MTS * * *
	EWR 127-1	Range Safety	Aerospace	2 MTS
	Standard Terminal Display Standard			
	Mil-Std 1521	Design reviews - Currently canceled; SMC using on programs;		
	DoD-Hdbk-343	Design, Construction & Testing Rqts - One of a Kind Space Equip		
	DoD-Std-1766	Nuclear Hardness & Survivability Prg Rqts - ICBM & Satellite Systems		
3.1.2	*Other Military/Govt Specs/Stds*			
	MIL-STD-461/462	EMI		
	MIL-STD-1385B	EMI (Preclude Ord Hazard in EMC)		
	MIL-STD-463A	EMI		
3.2	Space Non-Government Stds			
3.2.1	*ISO Space Standards*			
	Parts Management ISO Standard	Parts Management		
	WE14302	Electromagnetic Compatibility Requirements	Aerospace SETA	
	WD14304	Electroexplosive Devices - Electromagnetic and Electrical Tests	Aerospace SETA	
	WD14621	EEE Parts; Control Program Requirements and Plan, Guidelines for	Aerospace SETA	

Indenture Level	Task Description	Comments	Resource	Total Project Funding
	CD14622	Loads and Induced Environments	Aerospace SETA	
	WD14623	Pressure Vessels and Pressurized Systems	Aerospace SETA	
3.2.2	*IEEE*			
3.2.3	*AIAA*			
	AIAA CPSRS	Tech review of existing standards; AIAA initiative		
	ANSI/AIAA S-080-1998	Standard for Space Systems - Metallic Pressure Vessels, Pressurized Structures, and Pressure Components		
	ANSI/AIAA S-081-2000	Standard for Space Systems - Composite Overwrapped Pressure Vessels		
	ANSI/AIAA R-100A-2001	Recommended Practice for Parts Management		
		Orbital Debris Mitigation		
	ANSI/AIAA R-013-1992	Recommended Practice for Software Reliability		
3.2.4	*Avionics Working Group*			
	AWG Parts Engr NGS Doc Review	Use of parts outside mfr's specified temp limits		
3.2.5	*International Aerospace Quality Standard (IAQG)*			

Indenture Level	Task Description	Comments	Resource	Total Project Funding
	International Aerospace Quality Standard (IAQG)	9100 - Quality Sys for Aero Mfrs; 9101 - Checksheet for 9100; 9102 - First Article Inspection; 9103 - Mgmt of Key Characteristics; 9110 - Quality Sys for Aero Repair Stations; 9111 - Checksheet for 9110; 9120 - Quality Sys for Distributors; 9121 - Checksheet for 9120;9130 - Record Retention; 9131 - Nonconformance Documentation; 9132 - 2D Bar Coding; 9133 - Part Qualification Process	SMC Aerospace SETA	
3.2.6	*SAE*			
3.3	Domain Functional Areas (Mil & NGS)			
3.3.1	*Joint Technical Architecture/OSA*			
3.3.2	*Satellite Imaging Standards & Protocols*			
	N-0105-99	NITFS Standards Compliance and Interoperability Test and Evaluation Program Plan.	Aerospace SETA	
	MIL-STD-2500B	National Imagery Transmission Format Version 2.1. With NOTICE 2.	Aerospace SETA	
	MIL-STD-2500A	National Imagery Transmission Format (Version 2.0) through NOTICE 3.	Aerospace SETA	
	STDI-0002	The Compendium of Controlled Extensions (CE) for the National Imagery Transmission Format (NITF) VERSION 2.1, 16-Nov-1999	Aerospace SETA	
3.3.3	OSS&E			
	Space Flight Worthiness Criteria	Technical criteria to certify SMC systems under OSS&E	SMC SETA Aerospace	

Indenture Level	Task Description	Comments	Resource	Total Project Funding
	OSS&E Engineering Guide	Engineering guidance to implementation & application of SFWC		
3.3.4	GPS			
	ICD-GPS-200C	ICD-GPS-200C, NAVSTAR GPS Space Segment/Navigation User Interfaces, 12 April 2000.		
3.3.5	Satellite State of Health Communi-cation Stds			
	CCSDS 401.0–B-6	CCSDS 401.0–B-6, Radio Frequency and Modulation Systems–Part 1: Earth Stations and Spacecraft, May 2000, Consultative Committee for Space Data Systems.		
	ISO 11754	ISO 11754, Telemetry Channel Coding, 1994, International Stan-dardization Organiza-tion		
	ISO 12171	ISO 12171, Telecomm and, Channel Service, Architectural Specifica-tion, 1998, Interna-tional Standardization Organization.		
3.3.7	Low Data Rate	MIL-STD-1582D, EHF LDR Uplinks and Downlinks, 30 Sep-tember 1996; with No-tice of Change 1, 14 February 1997; No-tice of Change 2, 17 February 99.		
3.3.8	Medium Data Rate	MIL-STD-188-136A, EHF MDR Uplinks and Downlinks, 8 June 1998; with Notice of Change 1, 1 July 1999.		
3.3.9	C4ISR Domain Standards			
4.0	Space LSA			
4.1	Domain Organization, Planning & Admin			

Indenture Level	Task Description	Comments	Resource	Total Project Funding
	Domain/Organizational/Expertise Network	Establish network of organizations and technical experts in space domain for each major domain element	SMC Aerospace SETA	
4.2	Engineering Assessment			
	Engineering Assessment and Planning	Domain assessment of engineering deficiencies, criticality and impact; plan and prioritize work	SMC Aerospace SETA	
	Functional Area Analysis	Focused analysis of specific areas/ functions which support standardization objectives	SMC Aerospace SETA	
	JTA/OSA (Space systems specific)		SMC Aerospace SETA	
	Imaging Standards & Protocols (Space)		SMC Aerospace SETA	
	Information/Communication S		SMC Aerospace SETA	
	Satellite systems component & interfaces engineering assessment	Assess for standardization opportunities	SETA	$120K
	Satellite systems acquisition technical practices assessment	Assess for standardization opportunities	SETA	$120K
	Satellite systems technology insertion assessment	Assess for standardization opportunities	SETA	$120K
4.3	Standardization Initiative Implementation			
	Reliability Predictions Methodology	PRISM assess & other tools	Aerospace SETA	.3MTS $20K
	Process Engineering Reliability FR	Practicality of parameter & utility	Aerospace SETA	.3MTS $20K
	Space Sys Reliability Program Control Program	Critical elements of effective reliability program	Aerospace SETA	.35MTS
	Mil-Hdbk 1543 -Space Sys Reliability	Industry dropped ball during acq reform - need engr tool	Aerospace SETA	.45MTS
	Travel Funds		SMC	$40K

Appendix C
Sample Funding Justifications[2]

AF O&M BUDGET
FY01 BER
OBAN 47XX
($400,000)

Title: Defense Standardization Program Priority: B5

Business Area: PSBA Criticality: Mission Critical (MC)

Total Requirement: $400,000 **Funded Amount:** $0 **Unfunded Amount:** $400,000

BAC: BA04 PEC: 72806 EEIC: 592

PRODUCT/SERVICE: The output of this task includes both products (engineering specifications and standards) and technical services supporting the planning, development and implementation of the DSP Strategic Plan program initiatives.

DESCRIPTION OF EFFORT:

a. Total Requirement: This requirement provides technical engineering resources to support the implementation of the USD(A&T) Defense Standardization Program Strategic Plan, in addition to the engineering resources required to develop and maintain those military and industry (national and international) specifications and standards used in the acquisition of SMC space-based systems and those technical responsibilities as the Lead Standardization Activity (LSA) for Space. On 17 Dec 99, Dr Gansler, The Under Secretary of Defense (Acquisition, Technology, and Logistics) approved the Defense Standardization Strategic Plan. Under the DSP, SMC is the Lead Standardization Office (LSA) for space systems and is expected to provide engineering technical resources to support implementation of the DSP Strategic Plan related to space systems. Elements of the DSP program and strategic plan include: advancing interoperability through commonality of systems, components, and architectures, and providing a source for information and guidance to the operational, acquisition, and logistics communities; standardization of interfaces, architectures, processes, and parts, including improved models for cost/benefit analyses; comprehensive and integrated infrastructure that encompasses the standardization needs of the operational, acquisition, sustainment, information technology, and related military and civil

[2] Not included in these documents is a brief engineering assessment and purpose/objective of the task, and customers affected.

communities; improving logistics readiness by fostering technical and standardization expertise in the operations, acquisition, and logistics communities; establishing management and technical practices and engineering tools that facilitate and promote implementation of standardization on space and ground systems.

b. Funded Requirement: SMC provides organic Air Force and Aerospace resources to work the very high priority and mission essential actions required in this area.

c. Unfunded Requirement: The technical resources to effectively implement the DSP are not available. Organic resource reductions have forced abandonment of development and maintenance of the engineering tools used in support SMC acquisitions.

IMPACT IF NOT FUNDED: On the surface, the impact of not funding this activity appears insignificant. However, these resources are used to develop the engineering methodology and technical acquisition tools for use in an acquisition reform environment. While we no longer mandate most military specifications and standards in our RFP's, we must continue to ensure implementation of effective technical processes on our programs. For those critical processes in any given system acquisition, we will need to continue to conduct assessment during source selection and manage the implementation after contract award. As we strive to leverage off of the commercial technology base and industry practices, and as both government and industry move to revamp their internal processes and supporting documentation, our past failure experiences in the space business remind us that we must still ensure the performance, quality and reliability of our space and other military systems. The elimination of restrictive government specifications and standards from DoD Requests For Proposals (RFPs) and contracts provides enormous opportunities for industry to apply innovative design solutions and emerging technology while using industry practices, however, the government we must continue to assure these new and re-engineered processes represent application of sound engineering, manufacturing and test practices.

Applicable Business Area Objectives:

POC: David Davis/AXEM/32406/32826/david.davis@losangeles.af.mil

AF O&M BUDGET
FY01 BER
OBAN 47XX
($150,000)

Title: Space Sys Standardization/Open Sys Architecture Priority: B5

Business Area: PSBA Criticality: Mission Critical (MC)

Total Requirement: $150,000 **Funded Amount:** $0 **Unfunded Amount:** $150,000

BAC: BA04 PEC: 72806 EEIC: 592

PRODUCT/SERVICE: The output of this task will be a technical report providing a roadmap, based on a systems approach which systems, subsystems, parts, etc. are appropriate to establish system development and acquisition initiatives for specifying system architecture, interface and other technical requirements.

DESCRIPTION OF EFFORT:

a. Total Requirement: The ability to institute system, subsystem or component standardization opportunities is hindered by a lack of knowing where there are standardization opportunities which can help achieve mission, system, acquisition goals and objectives and what can actually be done to facilitate implementation. Additionally, in recent years, DoD interest in how to exploit the space commercial revolution has continued to grow and activities are on-going to study, understand and identify opportunities to exploit the space commercial revolution" to support future military space architectures in an era of declining defense dollars. This effort is consistent with the DoD Open Systems Architecture and Joint Technical Architecture objectives which include: provide the foundation for interoperability among all tactical, strategic, and combat support systems; mandate interoperability standards and guidelines for system development and acquisition that will facilitate joint and coalition force operations (these standards are to be applied in concert with DoD standards reform); communicate to industry DoD's intent to consider open-systems products and implementations; and acknowledge the direction of industry's standards-based development. The objective of this proposed study is to assess satellite and ground system technical architectures for the purpose of identifying those critical areas where standardization strategies will facilitate achieving mission, system, and acquisition goals and objectives. This task will provide a roadmap, based on a systems approach which areas, components, subsystems, parts, etc. may be candidates for standardization. For example, in the past, a standard SGLS was one candidate considered for a horizontal engineering effort to obtain standardization across SMC space systems. Standardization projects, initiatives, and requirements can include system level requirements such as interoperability, open systems architecture, or interface requirements, industrial practices/standards utilized in the acquisition and operational phases of a

DoD system; standardization of material/parts for purposes of achieving enhanced reliability and logistics item reduction/control; engineering practices and technology standards applied in system development and deployment; industrial best practices and industry standards applied in system development and deployment; manufacturing process standards; test methods.

b. Funded Requirement: SMC provides organic AF and Aerospace resources to work the very high priority and mission essential actions.

c. Unfunded Requirement: The technical resources to effectively implement the activities described above are not available. Organic resource reductions (AF & Aerospace Corp) have forced the abandonment of several engineering initiatives which have significant potential for cost reduction and leveraging the commercial industry.

IMPACT IF NOT FUNDED: With the implementation of acquisition reform and performance based contracting, allowing for contractor innovation and increased leverage from the commercial industry, have resulted in significant variation of technical processes and practices across the industry. Standardization, has in many respects, gone by the way side. With the significant reduction in resources across government and industry, there is inadequate opportunity to take the time or resources to assess and identify program/system opportunities for developing and specifying appropriate technical requirements which will accomplish the objectives and benefits of initiatives such as open system architecture and joint technical architecture.

Applicable Business Area Objectives: Support Product Support Business Area Objectives

POC: David Davis/AXEM/32406/32826/david.davis@losangeles.af.mil